GULYAYEV, V.N.

Work of efficiency promoters at the Moscow Food Combine. Kons. i ov. prom. 13 no.9:13-15 S '58. (MIRA 11:10)

1. Moskovskiy ordena Lenina pishchevoy kombinat imeni Mikoyana.
(Moscow--Food industry--Equipment and supplies)

GULYAYEV, V.N.

Machine for labeling food cans. Kons. i ov. prom. 14 no.6:22-23 Je '59. (MIRA 12:8)

1.Moskovskiy ordena Lenina pishchevoy kombinat imeni A.I. Mikoyana.
(Labeling machines)

GULYAYEV, V.K.

Variety of dehydrated cereal and vegetable products for children and for use as a dietetic food. Kons. i ov. prom. 14 no.7:15-16 Jl '59. (MIRA 12:9)

1.Moskovskiy ordena Lenina pishchevoy kombinat imeni A.I. Mikoyana.

(Food, Dried)

GULYAYEV, V.N.

Production of puffed sweet rice. Kons.i ov.prom. 15 no.3:26-28 Mr '60. (MIRA 13:6)

1. Moskovskiy ordena Lenina pishchevoy kombinat imeni Mikoyana. (Rice)

GULYAYEV, V.N.; YELASHOV, Yu.G.

Cleidocranial dysostosis. Ortop.,travm.i protez. no.7:64-65 '61. (MIRA 14:8)

1. Iz Saratovskogo instituta travmatologii i ortopedii (dir. - dotsent Ya.N. Rodin).
(DYSOSTOSIS)

GULYAYEV, V.N.

Improving the quality of concentrates of leguminous groats.
Kons. i ov. prom. 16 no.7:25-26 Jl '61. (MIRA 14:8)

1. Upravleniye konservnoy i ovoshchesushil'noy promyshlennosti Rospotrebsoyuza.
(Cereal products)

GULYAYEV, V.N.

Manufacture of starch in vegetable drying plants. Kons.i ov. prom. 17 no.6:22-23 Je '62. (MIRA 15:5)

1. Upravleniye konservnoy i ovoshchesushil'noy promyshlennosti Soyuza potrebitel'skikh obshchestv RSFSR.
(Starch)

GULYAYEV, V.N.

Conference of the representatives of the dried vegetable and canning plants of the consumers' cooperative of the R.S.F.S.R. Kons.i ov.prom. 17 no.6:45-47 Je '62. (MIRA 15:5)
(Canning and preserving)

GENIN, Samuil Aaronovich; GULYAYEV, V.N., retsenzent; SERIK, A.P., red.

[New types of dehydrated potato products; dehydrated mashed potatoes] Novye vidy sushenykh produktov iz kartofelia; sukhoe kartofel'noe piure. Moskva, Pishchevaia promyshlennost', 1965. 133 p. (MIRA 18:5)

PROKHOROV, Vasiliy Romanovich; GULYAYEV, V.N., inzh., retsenzent;
PRITYKINA, L.A., red.

[Manufacture of food products from potato and corn] Proiz-
vodstvo pishchevykh produktov iz kartofelia i kukuruzy.
Moskva, Pishchevaia promyshlennost', 1965. 307 p.
(MIRA 18:10)

GULYAYEV, V.N., kand. tekhn. nauk; TSEYTLIN, V.Z., kand. tekhn. nauk; RYABOVA, L.I., inzh.; TALOV, N.P., inzh.; BULANOV, Yu.P., inzh.

Effect of the duration of the heating on the structure and properties of chromium-manganese-nickel steels. Teploenergetika 11 no.8:54-57 Ag '64. (MIRA 18:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy teplotekhnicheskiy institut i TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.

GULYAYEV, V. N.

Gulyayev, V. N. --Certain Questions of the Contact Joing (Skhvatyvaniye) of Metals and Oxide Films." Min Electric Power Stations USSR, All-Union Order of Labor Red Banner Heat Engineering Sci Res Inst imeni F. E. Dzerzhinskiy, Moscow, 1955 (Dissertation for the Degree of Candidate in Technical Sciences)

SO: Knizhnaya Letopis', No 24, 11 June 1955, Moscow, Pages 91-104

GULYAYEV, V.N., kand. tekhn. nauk.

Determination of relative resistance to wear of ShBM balls. Teploenergetika 4 no.12:25-27 D '57. (MLRA 10:11)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Coal, Pulverized)

GULYAYEV, V. N.

/Performance of sulfide-forming burnishing compounds in the tubes of water gages. V. N. Gulyaev and K. I. Yatsenko. *Elek. Stantsii*, 28, No. 6, 7 (1957).—Two compds. are described, one contg. NaCNS 1) 2. Na_2SO_4 [illegible] the other one being made up [illegible] the tubes of the water gage with [illegible]

GULYAYEV, V.N., kand.tekhn.nauk

Selection of minimum clearances for high-temperature threaded joints. Energomashinostroenie 4 no.3:33-36 Mr '58. (MIRA 11:5)
(Screw threads)

GULYAYEV V.N.

AUTHORS: Gulyayev, V. N., Ratner, A. V. 30-2-12/60

TITLE: Devices for Testing Metals for Th ir Resistance Under Working Conditions (Prisposobleniya dlya ispytaniya metallov na dlitel'nuyu prochnost' v rabochikh sredakh)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 2, pp. 226-228 (USSR)

ABSTRACT: As some metal parts are often exposed to the influence of some hundred atmospheres and to high temperatures a testing method was developed that makes it possible to investigate the resistance at 300 to 500 atmospheres and at 650° to 700°C. Two arrangements (which can be adapted to the machine [illegible]-2) for the determination of the corrosion resistance duration are described. In the first arrangement the cylindric test sample is fastened to the holders of the machine [illegible]-2 in a furnace as can be seen in the figure. Another furnace contains an ampoule which is filled with a condensate before the test. The ampoule and the test sample are connected by a tube (with pressure gauge). Before the test begins the tube is welded up. By the heating of the

Card 1/2

Devices for Testing Metals for Their Resistance Under Working Conditions 32-2-42/60

furnaces and by the vaporization of the condensate, both, temperature and pressure are increased. The second arrangement, proposed by A. V. Ratner, shows in its schematic representation that the test sample can be deformed perturbation-free when the corrosion resistance duration is investigated. The tension is calculated in the tests according to a given formula. With both test arrangements it is possible to use other substances instead of the condensate. The construction material for both devices is heat-resisting stainless steel. There are 2 figures and 4 references, all of which are Slavic.

ASSOCIATION: All-Union Scientific Thermotechnical Research Institute imeni F. E. Dzerzhinskiy (Vsesoyuznyy teplotekhnicheskiy nauchno-issledovatel'skiy institut imeni F. E. Dzerzhinskogo)

AVAILABLE: Library of Congress

1. Corrosion resistant alloys--Test methods

Card 2/2

L 3388-66 EWT(m)/EWP(w)/EPF(c)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) IJP(c) MJW/JD/JG/WB

ACCESSION NR: AP5024136 UR/0096/65/000/010/0044/0046 620.191.001.5

AUTHOR: Gulyayev, V. N. (Candidate of technical sciences); Tsybina, I. N. (Engineer)

TITLE: Corrosion cracking of types OKh21N5T and OKh21N6M2T steels

SOURCE: Teploenergetika, no. 10, 1965, 44-46

TOPIC TAGS: heat resistant steel, corrosion resistance, sodium chlroide/ OKh21N5T steel, OKh21N6M2T steel

ABSTRACT: Composition of the steels tested was as follows: OKh21N5T: 0.07% carbon, 0.57% manganese, 0.58% silicon, 0.007% sulfur, 0.024% phosphorous, 21.1% chromium, 5.50% nickel, and 0.49 titanium; OKh21N6M2T: 0.06% carbon, 0.45% manganese, 0.45% silicon, 0.010% sulfur, 0.022% phosphorous, 21.0% chromium, 6.11% nickel, 0.44% titanium, and 1.98% molybdenum. For comparison, tests were also made on samples of 1Kh18N9T steel with the following composition: 0.11% carbon, 1.2% manganese, 0.5% silicon, 0.028% phosphorous, 0.023% sulfur, 19.17% chromium, 9.46% nickel, and 0.55% titanium. The tests were made after austenizing at 1050C. Tests in a 42% boiling solution of magnesi-

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um chloride were made on samples with a diameter of 3 mm at the effective section. The concentration of the magnesium chlorde solution was controlled by its boiling temperature which was maintained at 153 ± 1C. A test of steel OKh21N6M2T* in a solution of sodium chloride containing 100 grams/liter of chlorine ions, 450 mg/liter of oxygen, and 1050 mg/liter nitrogen, at 310C, a pressure of 120 atm, and a stress of 35 kgf/mm^2 led to failure of the steel in a period of time not exceeding 10 hours. Test results show that OKh21N5T and OKh21N6M2T steels have a tendency toward corrosion cracking in solutions containing chlorine ions. With a stress of 30-35 kgf/mm^2, steel OKh21N5T* fails before steel 1Kh18N9T in a solution of magnesium chloride. Thanks to the alloyed molybdenum, steel OKh21N6M2T has better resistance to corrosion cracking than steel 1Kh18N9T. However, in a solution of sodium chloride with the above concentration of chlorine ions and with a considerable amount of oxygen in the solution, steel OKh21N6M2T does not exceed the resistance of steel 1Kh18N9T which, according to literature data, is from 24 to 80 hours. In a 4% caustic soda solution, steels OKh21N5&* and OKh21N6M2T* have greater resistance to corrosion cracking than steel 1Kh18N9T. Orig. art. has: 5 figures and 2 tables.

* [Designation should be OKh21N5T.]

L 3388-66

ACCESSION NR: AP5024136

ASSOCIATION: VoFVTI

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NR REF SOV: 007 OTHER: 004

Card 3/3

32-24-6-35/44

AUTHORS: Ratner, A. V.; Gulyayev, V. N.

TITLE: On Testing Armature Materials With Respect to Their Resistivity to Wear (Ob ispytaniyakh armaturnykh materialov na soprotivleniye zadiraniyu)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 6, pp 770-774 (USSR)

ABSTRACT: The present paper describes some characteristics of test methods as well as the machines used. The material of the connection pieces influences the resistance to wear of the friction surface, and to do the conditions of friction; in this way the existing test machines differ also by the shape of their friction surfaces, by the temperature of testing, by the type of the working medium, by the number of samples simultaneously subjected to friction, by the conditions of gliding and by the kind of drive. In tests in a vapor medium the function of the resistance to wear can be represented by an equation as a function of the friction surface and the depth of wear. The resistance to wear is

Card 1/3

On Testing Armature Materials With Respect to Their Resistivity to Wear

usually determined by measuring the contact friction surface and the depth of wear, a double microscope according to Linnik MIS -11 or a microinterferometer MII 5 being used. The samples used for the tests must be thermally stabilized and their surface must be polished and cleaned. In order to take into account the deviation of the measurement data a certain safety factor must be assumed in the selection of the permissible specific pressure brought to bear upon the friction surfaces. The apparatus produced by Scheffer and Budenberg is schematically shown and described, as well as parts of machines for tests carried out in a vapor medium with a horizontal axis and a forward motion of the sample by means of a table containing data on the tests at high temperatures. Among other things it is mentioned that additional tests of the friction parts of the test samples of the armatures must be carried out at working conditions for the purpose of a control and a precise rendering of test results. There are 4 figures, 1 table, and 4 references, 2 of which are Soviet.

Card 2/3

32-24-6-35/44

On Testing Armature Materials With Respect to Their Resistivity to Wear

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy nauchno-issledovatel'skiy institut im. F. E. Dzerzhinskogo
(All-Union Scientific Pyrometric Research Institute imeni F. E. Dzerzhinskiy)

1. Aramtures--Physical properties 2. Materials--Mechanical properties
3. Materials--Testing equipment 4. Materials--Test results

Card 3/3

AUTHOR: Gulyayev, V. N. SOV/32-24-10-29/70

TITLE: A Method of Determining the Strength of Oxide Films (Metod opredeleniya prochnosti okisnykh plenok)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 10, pp 1245-1246 (USSR)

ABSTRACT: A new method was devised which makes unnecessary the preparation of samples, utilizing instead a growing-together of the oxide films (Ref 1). The strength of the oxide films is classified according to the results of mechanical tests on a sample pair. A diagram of the samples used is given; from it may be seen that the working surface of the sample pair is on the one hand plane and on the other hand conical. The zone of adhesion visible after the separation of the two samples has an annular shape; its surface can be measured. The samples are suspended in the oven (e. g. of the machine IP-2) at a certain temperature and for a certain period, and are then tested. A table of values for the strength of the oxide phases of carbon steel of the type MSt.4 is given. The results were obtained by the method described with samples produced on a lathe without subsequent grinding. There are 2 figures, 1 table, and 1 reference, 1 which is Soviet.

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SOV/32-24-10-29/70

A Method of Determining the Strength of Oxide Films

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy nauchno-issledovatel'skiy institut im. F. E. Dzerzhinskogo (All-Union Thermotechnical Scientific Research Institute imeni F. E. Dzerzhinskiy)

Card 2/2

Gulyayev V.N.

PHASE I BOOK EXPLOITATION SOV/4159

Ekspluatatsionnaya nadezhnost' metalla parosilovykh ustanovok; sbornik statey (Operational Reliability of Metal in Steam Power Plants; Collection of Articles) Moscow, Gosenergoizdat, 1959. 126 p. 2,200 copies printed.

Ed. (Title page): I.N. Laguntsov, Candidate of Technical Sciences; Ed. (Inside book): I.K. Korikovskiy; Tech. Ed.: N.I. Borunov.

PURPOSE: This collection of articles is intended for technical personnel of power stations, power machinery plants, and scientific research institutes.

COVERAGE: The articles set forth the results of investigations that were conducted by Otdeleniye metallov, Vsesoyuznyy teplotekhnicheskiy institut imeni F.E. Dzerzhinskogo (Department of Metals of the All-Union Heat Engineering Institute imeni F.E. Dzerzhinskiy) in the years 1955-57. The articles deal with the problem of investigating new types of steel and of analyzing the causes of damage to certain parts of power plant equipment. Problems associated with operating dependability of welded joints in steam piping for high and extra-high pressure boilers are discussed. The results of investigations of dry pressure "bonding" of metals under high-temperature conditions are given. The reasons for seizure and "baking" together of threaded joints and methods for preventing these phenomena are explained. No personalities are mentioned. References accompany individual articles.

AVAILABLE: Library of Congress

S/137/62/000/003/146/191
A052/A101

AUTHORS: Gulyayev, V. N., Laguntsov, I. N.

TITLE: Joints of mated metal parts at oxidation

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 78-79, abstract 3I504 (V sb. "Ekspluatats. nadezhnost' metalla parosilovych ustanovok". Moscow-Leningrad, Gosenergoizdat, 1959, 106-115)

TEXT: ... the process of formation of a common oxide layer in the gaps between fixed st... parts, joints appear the strength of which depends on the chemical composi...n of the steel, the size of the gaps and the conditions of oxidation: temperature, time and the kind of the oxidizing medium. The application of special lubricants is necessary which prevent the hardening of oxide films, reduce the strength of the common oxide layer in the gaps, and lower the steel-on-steel coefficient of friction. The developed methods of determining the strength properties of oxide films can be used for investigating the heat-resistance of steel and alloys. The possibilities of increasing the service reliability of safety valves are considered. There are 5 references.

N. Yudina

[Abstracter's note: Complete translation]

Card 1/

GULYAYEV, V.N.

Device for testing creep in bending. Zav.lab. no.11:1386-1387 '59. (MIRA 13:4)

1.Vsesoyuznyy teplotekhnicheskiy institut im. V.E.Dzerzhinskogo.
(Creep of materials)

GULYAYEV, V.N., kand. tekhn. nauk.

Thread profile for joints subjected to high temperatures.
Elek. sta. 30 no.3:45-46 Mr '59. (MIRA 12:5)
(Screw threads)

PHASE I BOOK EXPLOITATION SOV/5256

Gerasimov, Valentin Vladimirovich, ed., Candidate of Chemical Sciences.

Korroziya reaktornykh materialov; sbornik statey (Corrosion of Nuclear-Reactor Materials; a Collection of Articles) Moscow, Atomizdat, 1960. 284 p. 3,700 copies printed.

Ed.: A.I. Zavodchikova; Tech. Ed.: Ye.I. Mazel'.

PURPOSE: This collection of articles is intended for mechanical and metallurgical engineers as well as for scientific research workers concerned with the construction of nuclear reactors.

COVERAGE: The water corrosion of various types of stainless steel and alloys under high pressures and temperatures is investigated from the point of view of the use of these materials for the construction of nuclear reactors. Attention is given to the following: the use of oxygen for protecting steel against corrosion, the behavior of steel in high-temperature

Card 1/9

water with various compositions, factors of metal stress corrosion, intergranular corrosion, the mechanism of corrosion cracking, and the corrosion resistance of aluminum and zirconium alloys. Conclusions based on test results are included. No personalities are mentioned. Most of the articles are accompanied by references. Of 238 references 97 are Soviet.

TABLE OF CONTENTS:

S/081/61/000/020/063/089
B102/B147

AUTHORS: Gulyayev, V. N., Akol'zin, P. A.

TIT. : Methods for long-time corrosion-strength tests of metals at high pressures and at the temperatures of the active medium

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 264 - 265, abstract 20I208 (Sb. "Korroziya reaktorn. materialov". M., Atomizdat, 1960, 5 - 16)

TEXT: Two apparatus and methods for long-time corrosion-strength tests of specimens at high temperatures and at pressures corresponding to operating conditions are described in detail. The ВТИ-1 (VTI-1) apparatus is characterized by the following features: a) possibility of producing a high pressure for the active liquid by means of a gas or a gas mixture from bulbs; b) possibility of continuous saturation of the liquid with gas (in particular with oxygen) for production of solutions with different concentrations; c) existence of a special device for selection and analysis of gases dissolved in the liquids at operating pressures and temperatures. The ВТИ-2 (VTI-2) apparatus differs from the VTI-1 type as to the method

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Methods for long-time...

of raising the pressure of the liquid: A sylphon-type hydraulic press with an upper pressure limit of 225 atm is provided for this purpose.
[Abstracter's note: Complete translation.]

Card 2/2

S/081/61/000/020/050/089
B107/B101

AUTHORS: Akol'zin, P. A., Gulyayev, V. N., Laguntsov, I. N.

TITLE: Corrosion cracking of austenite steels in thermal power stations

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 260, abstract 20I153 (Sb. "Korroziya reaktorn. materialov". M., Atomizdat, 1960, 93 - 102)

TEXT: The authors describe several cases of corrosion cracking in austenite steels at heating-and-power stations observed on boilers under overcritical operation conditions (300 atm, 600°C). 1X18H9T (1Kh18N9T) steels was found to be suited for the production of heating-and-power station equipment. It is, however, necessary to control conditions and quality of the water, and take account of the specific properties of austenite steels.
[Abstracter's note: Complete translation.]

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S/104/60/000/011/001/001
E194/E484

AUTHORS: Akol'zin, P.A., Doctor of Technical Sciences,
Gul'yayev, V.N., Candidate of Technical Sciences and
Laguntsov, I.N. Candidate of Technical Sciences

TITLE: Corrosion Cracking of Austenitic Steels in Thermal Power Installations With Super-High Steam Conditions

PERIODICAL: Elektricheskiye Stantsii, 1960, No.11, pp.29-32

TEXT: Austenitic steel parts of thermal power equipment have been subject to a special kind of corrosion in service, this takes the form of local corrosion cracks under stress. This article generalizes Soviet and German published work on this subject. In a once-through boiler with super-critical steam conditions of 300 atm and 600°C, corrosion cracking was observed during the conduct of special tests to investigate salt deposits for which purpose caustic soda, sodium chloride, sodium silicate and sodium sulphate were introduced into the feed water in amounts of 100, 200 40 and 32 mg/litre respectively. The tests lasted for 3 to 4 hours with each solution. The steel in question was grade 1Kh18N9T-257 (EI-257) Damage of a transcrystallite character appeared on sections of pipework subject to severe stress. The damage occurred after about

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S/104/60/000/011/001/001
E194/E484

Corrosion Cracking of Austenitic Steels in Thermal Power Installations With Super-High Steam Conditions

6000 hours service, a number of other cracks were found and others continued to appear for some months. These defects were all associated with the tests on salt deposit formation. A number of operating troubles experienced at the Cherepet' Station are reviewed, here the rated steam conditions at the turbine stop valve are 170 atm 550°C. Damage due to corrosion under stress took place in the first period of operation in the convective part of the super-heater made of steel EI-257. The feed water conditions have since been modified and the trouble has now been overcome. The most serious cases of failure of tubes of austenitic steel under stress occurred in the West German Chemical Works of Hüls. Details of this case obtained from German published work are given. It is concluded that austenitic steels work quite reliably provided that proper allowance is made for their specific features including the tendency to corrosion cracking in aggressive media, low thermal conductivity and high coefficient of linear expansion. Caustic soda and chlorides act as corrosive

Card 2/3

Corrosion Cracking of Austenitic Steels in Thermal Power Installations With Super-High Steam Conditions

medium during boiler operation. The action of chlorides is intensified if the amount of oxygen in solution is increased. The weakest places are those with unrelieved remanent stresses, particularly bends of small radius, welded joints and the like, and so these should be carefully heat treated to remove the stresses before use. In the operation of water purification systems, the instructions should be strictly observed and in particular correct regeneration of the anionite filters is essential. If caustic soda or other non volatile alkalis get into the feed water they will cause corrosion cracking of austenitic steel in a very short period of time. To avoid corrosion cracking, the stresses on the metal should not be excessive, particularly variable stresses, and the working media that comes into contact with the metal should be of appropriate purity. Austenitic steels can also be subject to cracking in acid solutions but this question is not yet fully understood. There are 1 figure and 6 references: 3 Soviet and 3 German.

Card 3/3

18.8200
~~28(5)~~

S/032/60/026/02/030/057
B010/B009

AUTHOR: Gulyayev, V. N.

TITLE: Influence of the Sample Dimensions Upon the Fatigue Strength of Steels of Types 12KhMF and 1Kh18N12T

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol 26, Nr 2, pp 198 - 201 (USSR)

ABSTRACT: The influence of the scaling factor upon the fatigue strength of the steel types 12KhMF and 1Kh18N12T was investigated, since the relevant publications contain conflicting data on the subject. The investigations were made at approximately 600° over a period of 3627 hours. The tube samples of 12KhMF steel (diameter 273 × 26 mm) were normalized at 800-830° prior to the test, while the 1Kh18N12T steel tube samples (193 × 28 mm) were austenitized at 1050-1100°. Samples with diameters (d) of 5, 10, and 15 mm were tested by A. V. Stanyukovich on the IP-2 machine, samples with d = 20 mm on the MDP-30 machine (designed by the TsKTI im. Polzunova (TsKTI imeni Polzunov)). Some measurement results were represented graphically, and the findings were as follows: At 600° and a duration of the test of up to 2500 hours the fatigue strength of 12KhMF steel is independent of dimensional changes in the sample within the

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Influence of the Sample Dimensions Upon the Fatigue Strength of Steels of Types 12KhMF and 1Kh18N12T

S/032/60/026/02/030/057
B010/B009

range from d = 5 mm and l_m = 12.5 mm to d = 20 mm and l_m = 100mm (l_m = measured length of the sample). In the case of tests resulting in a fracture, where the sample is constricted in one place and its surface is mildly c[illegible]ed, the fatigue strength of the sample does not depend on the sample diameter within the range of 5-20 mm. No influence of a change in diameter (from 10 to 5 mm) upon the fatigue limit of 1Kh18N12T steel was observed in the course of 100,000 hours at 600°; when samples with a diameter d = 5 mm were tested, however, the time of strain until the fracture occurred was reduced. Interruptions in the testing of 12KhMF steel had no effect upon the fatigue strength and plastic properties. It is recommended for comparative tests of structural steels for power engines to use the more economical samples with stepped-down sections, since the results obtained with them were found to be identical with those yielded by ordinary samples (d = 10 mm). Mention is made of Ye. M. Shevandin et al (Ref 2), I. A. Oding, and Z.G.Fridman (Ref 6). There are 4 figures and 6 references, 4 of which are Soviet.

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6823

Influence of the Sample Dimensions Upon the Fatigue Strength of Steels of Types .2KhMF and 1Kh18N12T

S/032/60/026/02/030/057
B010/B009

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy institut im. F. E. Dzerzhinskogo (All-Union Institute of Heat Engineering imeni F. E. Dzerzhinskiy)

Card 3/3

GULYAYEV, V.N.; AKOL'ZIN, P.A.; IVANOV, Ye.N.; GROMOVA, Ye.S.

Use of rapid method of determining the tendency of metals to corrosive cracking. Zav.lab. 26 no.3:340-341 '60. (MIRA 13:6)

1. Vsesoyuznyy teplotekhnicheskiy nauchno-issledovatel'skiy institut im. F.E. Dzerzhinskogo.
(Metals--Corrosion)

GULYAYEV, V.N., kand.tekhn.nauk; RATNER, A.V., kand.tekhn.nauk;
SHAPOROVSKAYA, Z.A., inzh.

Sleeve connections for pipelines. Elek.sta 31 no.1:10-12
Ja '60. (MIRA 13:5)
(Pipelines)

Gulyayev, V.N.

S/091/60/000/08/01/001

AUTHORS: Gulyayev, V.N., Engineer; [illegible], Shop Manager

TITLE: Application of a Graphite-Copper Lubricant for Threaded Connections

PERIODICAL: Energetik, 1960, No 8, pp 21 - 22

TEXT: Noting the considerable difficulties arising in repairs on power equipment due to galling of threaded connections, and explaining the reasons why such gallings occur, the authors recommend for general use on threaded connections operating at high temperatures a graphite-copper lubricant developed by a turbine shop of TETs VTI and successfully applied not only to threaded connections of GT-600-1.5 (GT-600-1.5) gas turbines, but also to other threaded connections. This lubricant consists of (by weight): 25% of powdered copper, 15% of flaky graphite, 60% of glycerin. This lubricant not only protects threaded connections from galling, but also from burning together. It is recommended to apply this protective lubricant only after a thorough inspection of the condition of threaded surfaces. It works well only when it covers the whole area of friction surfaces. It is

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82066 S/091/60/000/08/01/001

Application of a Graphite-Copper Lubricant for Threaded Connections

imperative to have on the friction threaded surfaces tolerances not less than the maximum specified for the 2nd class of precision of OCT-1251 (OST 1251). Practically, the tolerance can be considered to be sufficient, when a nut can easily be screwed onto a stud.

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S/032/60/036/03/034/064
B010/B117

AUTHORS: Gulyayev, V. N., Akol'zin, P. A., Ivanov, Ye. N., Gromova, Ye. S.

TITLE: On the Application of a Rapid Method of Determining the Liability of Metals to Corrosive Cracking

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol 36, Nr 3, pp 340-341 (USSR)

TEXT: A method used to estimate the resistance to corrosion of steels was suggested by the TsNIITMASh. The deterioration of the plastic properties of the metal in liquid corrosive substances is compared with the deterioration established when tests are performed in air with the state of the sample surface after the test also being considered. As this method gives no specific data concerning the type of corrosive substance, corresponding tests were performed in this case with an austenite steel of the type 1Kh18N9T in substances with a weak corrosive action. Experimental conditions and results obtained are given (Table). The samples were submitted to several preliminary thermal treatments before testing. It was found that the afore-mentioned test method cannot be used in substances with a weak corrosive action in which the extension of cracks formed by corrosion is very small (as compared to the elongation rate of the sample). There are 1 table and 2 Soviet references.

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On the Application of a Rapid Method of Determining the Liability of Metals to Corrosive Cracking

S/032/60/036/03/034/064
B010/B117

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy nauchno-issledovatel'skiy institut im. F. E. Dzerzhinskogo (All-Union Scientific Research Institute of Heat Engineering imeni F. E. Dzerzhinskiy)

Card 2/2

18.8300

25666
S/096/61/000/009/003/008
E193/E183

AUTHORS: Gulyayev, V.N., Candidate of Technical Sciences, Akol'zin, P.A., Doctor of Technical Sciences, Gromova, Ye.S., Engineer, and Ivanov, Ye.N., Engineer.

TITLE: Stress-corrosion cracking of Steel 1Х18Н9Т (1Kh18N9T) in sodium hydroxide and sodium chloride solutions

PERIODICAL: Teploenergetika, 1961, No.9, pp. 50-55

TEXT: Stress-corrosion cracking of austenitic stainless steel tubes that has occurred at several power stations (both in the Soviet Union and abroad), where they are used in the steam generating plant operating under particularly severe conditions, prompted the present authors to undertake the investigation described in the present paper. The experiments were carried out on tubular specimens, tested on equipment designed to simulate conditions obtaining in industrial practice. The composition of this steel varied within the following limits: 0.09-0.11% C; 0.85-1.24% Mn; 0.46-0.56% Si; 0.02% S; 0.015% P; 18.3-20.3% Cr; 9.7-10.2% Ni; and 0.5-0.6% Ti. In the actual tests the specimens,

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Stress-corrosion cracking of ....

filled with the appropriate solution (hot or cold) under pressure of up to 120 atm were stressed in tension, and either time-to-rupture was determined, or the extent (if any) of cracking was periodically measured. The concentration of NaOH in the test solutions varied between 40 and 40 000 mg/ℓ., the Cl^- concentration in the NaCl solution varying between 0.3 and 150 000 mg/ℓ. (In some tests hydrazine was added to the NaCl solution). Solutions, both deaerated and saturated with oxygen, nitrogen or argon, were tested. The effect of stress concentration was also studied by using specimens with a sudden change in the cross-section area. Finally, the effect of exposure to the corroding medium alternating with dry periods was studied. The results can be summarised as follows. 1) Under certain conditions, NaOH solutions can cause stress-corrosion cracking of steel 1Kh18N9T, even when the latter is in the fully austenitic state. 2) A 4% NaOH solution (pH = 14) can cause cracking of this steel or cause the development of leaks in faulty portions of a component in a time as short as several hours. 3) No stress-corrosion cracking was observed in specimens stressed for 900 hours at

Stress-corrosion cracking of ....

30 kg/mm^2 in contact with NaOH solutions of pH = 11, 12 or 13, at 310 °C and under a pressure of 120 atm. This means that failures due to stress-corrosion of steel 1Kh18N9T components in heat exchangers are most likely to occur in the regions of high NaOH concentration. 4) The rate of stress-corrosion is decreased when large quantities of oxygen or nitrogen are present in the NaOH solution. The time-to-rupture of the steel studied, subject to the action of a 4% NaOH solution with a nitrogen content of 1100-2000 mg/ℓ is 3-20 times longer than that in a solution with a nitrogen content of 15.8 mg/ℓ only. The effect of argon is similar, but not so pronounced. This is illustrated in Fig.4, showing the strain/time (mm/h) curves for specimens tested under a stress of 35 kg/mm^2 in a 4% NaOH solution, non-deaerated (curve 1), saturated with argon (curve 2), and saturated with air (curve 3). 5) Chlorine ions cause stress-corrosion cracking of steel 1Kh18N9T only in the presence of oxygen, the rate of corrosion at a given oxygen content increasing with increasing Cl^- concentration. When both oxygen and depolarising action of the H^+ ions are absent, no stress-corrosion of steel 1Kh18N9T takes place in aqueous

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Stress-corrosion cracking of ....

solutions of NaCl, with the Cl^- content of up to 150 000 mg/ℓ. 6) In the presence of traces of oxygen, stress-corrosion of the steel studied can occur at both low (100 mg/ℓ) and high (150 000 mg/ℓ) Cl^- concentrations, but only if other contributing factors (such as non-uniform stress distribution, local damage of the protective oxide skin, etc.) operate. 7) At higher oxygen contents, stress-corrosion cracking of steel 1Kh18N9T can occur in water (at 310 °C and under a pressure of 120 atm) with a Cl^- content as low as 20 mg/ℓ. Thus, specimens simultaneously subjected to stress (35-40 kg/mm^2) and to the action of a solution (at 120 atm and 310 °C) containing 20 - 100 000 mg/ℓ Cl^- and 450 mg/ℓ O_2, can fracture in several hours. 8) Addition of up to 15 mg/ℓ hydrazine has no harmful effect, no cracking having been observed in specimens tested for 3590 hours at 310 °C and under 120 atm in a solution containing 100 mg/ℓ Cl^- and 15 mg/ℓ N_2H_4. 9) Other factors (the Cl and O concentration) being equal, the rate of stress-corrosion cracking of steel 1Kh18N9T is increased approximately twentyfold under conditions of exposure to the corroding medium alternating with drying.

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Stress-corrosion cracking of S/096/61/000/009/003/008
E193/E183

It was concluded that, if there is a possibility of steel 1Kh18N9T coming into contact with a corroding medium of the type studied, the bends in coiled tubes should be subjected to an austenitising treatment, and that no surface defects with residual tensile stresses, not removed by appropriate heat treatment, can be tolerated under these circumstances. The results of the present investigation indicate also that metal-liquid-gas and not metal-liquid systems should be investigated in studies of stress-corrosion phenomena.

There are 9 figures, 5 tables and 4 references: 2 Soviet and 2 non-Soviet. The English language reference reads as follows:

Ref.3: W.J. Singley, C.H. Welinsky, S.F. Whirl, H.A. Klein. "Stress corrosion of stainless steel and boiler water treatment at Shippingport Atomic Power Station". Proc. Amer. Power Conf. 21, 1959. Chicago III, Illinois Inst. Technol. 1959.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy institut
(All-Union Institute of Heat Engineering)

Card 5/6

20197

2808
109230 1418, 1413,

S/032/61/027/003/017/025
B101/B203

AUTHOR: Gulyayev, V. N.

TITLE: The size factor in the long-life strength test

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 3, 1961, 327-329

TEXT: The author reports on the long-life strength test of 12 МХФ (12MKhF) and ЭИ 18Н12Т (EI18N12T) steel specimens, diameter d = 3 - 20 mm. The specimens with d = 3 mm were tested by a ВТИ-3 (VTI-3) apparatus which can be placed in the furnace of an ИП-2 (IP-2) machine. Fig. 1 shows the results for d = 3 mm and d = 10 mm at 600°C. In 12KhMF steel, no influence of d on the long-life strength test was observed. Further tests showed that in this steel the size factor had no influence up to d = 20 mm. In 1Kh18N12T steel, specimens with d = 3 mm were more quickly destroyed at 25 - 30 kg/mm^2 than specimens with d = 10 mm. At 20 kg/mm^2, however, the durability of specimens with d = 3 mm was about 5.3% longer, and at 18 kg/mm^2 the specimen with d = 3 mm was not yet destroyed after 3809 hr while the specimens with d = 10 mm broke after 2976 or 3627 hr. Further, it was found for this steel that specimens with d = 15 mm broke

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S/032/61/027/003/017/025
B101/B203

earlier than those with d = 10 mm, both at 16 and 20 kg/mm^2 (IP-2 machine), and at 25 and 30 kg/mm^2 (МДП-30 (MDP-30 machine)). Specimens with d = 6 mm were more quickly destroyed than those with d = 10 mm, though the difference was smaller here. The different behavior of the two steel grades is explained by surface hardening which relaxes more slowly in 1Kh18N12T austenite steel than in 12KhMF perlite steel. To confirm the effect of surface hardening, special experiments were made with 1Kh18N12T steel, d = 6 mm, T = 600°C, σ = 30 kg/mm^2. Specimens hardened by hammering endured 27-28 hr, not hardened specimens, however, 60 hr. The longer durability of the specimens d = 6 mm is explained by a statistically lower number of defects in the small specimen. To study the behavior of the specimens d = 15 mm and d = 20 mm, new specimens with d = 8 mm were made from the fragments of destroyed specimens d = 15mm, and tested under equal conditions. The time τ_8 until destruction of the 8 mm specimen was determined and compared with the time τ_{15}. For T=600°C, σ = 18 and 20 kg/mm^2, τ_8/τ_{15} = 0.55 - 0.64 in 12KhMF steel; τ_8/τ_{15} = 0.14 - 0.22 in 1Kh18N12T steel. Hence, it is concluded that the effect

The size factor in the long-life... S/032/61/027/003/017/025
B101/B203

of the size factor in 12KhMF steel is blurred by its higher inhomogeneity. Finally, it is stated that specimens with d = 3 mm can be used for an informative test of boiler steels of any grade. As in 1Kh18N12T steel, on transition to d = 15 mm, the long-life strength test during 100,000 hr shows a reduction in strength by 0.55 kg/mm^2, the question is raised whether further tests with larger-sized specimens would be convenient. L. I. Denisova, Chief Laboratory Assistant, assisted in the experiments. I. I. Trunin and I. A. Oding are mentioned. There are 2 figures and 2 Soviet-bloc references.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy nauchno-issledovatel'skiy institut im. Dzerzhinskogo
(All-Union Scientific Research Institute of Heat Engineering imeni Dzerzhinskiy)

18 8310

S/032/61/027/006/014/018
B124/B203

AUTHORS: Gulyayev, V. N., Gromova, Ye. S., and Ivanov, Ye. N.

TITLE: Decomposable specimen for tests for long-term corrosion resistance

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 6, 1961, 759

TEXT: Tubular specimens are mostly used in long-term corrosion tests at high pressures and temperatures. Irrespective of their advantages compared with cylindrical specimens, tubular specimens with a tube part welded to the holder have many disadvantages. In this connection, the authors developed a decomposable specimen (Fig.) ground from a rod and consisting of the test part 1, the upper lock 2, and the lower lock 3. The locks should be made of the same material as the test part. When studying the bursting of stainless chrome-nickel and austenitic chrome--manganese-nickel steels, the locks may be made of 1Kh18N9T (1Kh18N9T) steel or a steel of similar composition. The test results with different austenitic steels of about the same chromium content are hardly affected by differing corrosion resistance with the construction chosen. The

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Decomposable specimen for tests

outer surface of the working part (12 mm in diameter) of the specimen is ground, and a thin layer is ground off the inner surface (8 mm in diameter). Insert 4 closes the gap between test part and lock. In the upper nut, there is a boring for pouring in the working liquid and for connecting the specimen with a device for increasing the pressure to the given value. The specimen is fixed in an IP-2 (IP-2) machine by means of cups 5,6 and connecting holders 7. The spherical rings 8 are introduced for an improved centering of the specimen. Between specimen and spherical ring, the half-rings 9 are placed which transmit the load from the cup to the specimen. The use of the specimen in tests at 310°C and 120 atm in an aqueous NaCl solution yielded favorable results. No discharge from the dismountable connections was observed in long-term tests up to 2,000 hr. There is 1 figure.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy nauchno-issledovatel'skiy institut im. F. E. Dzerzhinskogo (All-Union Scientific Research Institute of Heat Engineering imeni F. E. Dzerzhinskiy)

Card 2/3

2808

26384
S/032/61/027/008/007/020
B107/B206

18.8310

AUTHORS: Gulyayev, V. N., Akol'zin, P. A., Gromova, Ye. S., and Ivanov, Ye. N.

TITLE: Rapid method for testing austenitic steel with regard to its cracking tendency in aqueous sodium-chloride solutions

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 8, 1961, 981-984

TEXT: For the rapid determination of the corrosion-cracking tendency of various types of steel in aqueous chloride solutions, a boiling 42 % solution of $MgCl_2$ is sometimes used. As to its composition this solution does, however, not correspond to the media in which many devices operate; these are affected by aqueous sodium-chloride solutions. V. N. Nikiforova proposed a rapid method (Ref. 1: V. N. Nikiforova. Sb. TsNIITMASh, kn. 77 (1955)) by which the corrosion-cracking tendency of steel can be estimated from the variation of plasticity during elongation of the specimen in a solution. However, this method is not generally applicable, and fails if the formation of corrosion cracks is much slower than the elongation

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B107/B206

Rapid method for...

of the specimen (Ref. 2: V. N. Gulyayev, P. A. Akol'zin, Ye. S. Gromova and Ye. N. Ivanov, Zavodskaya laboratoriya, v. 26, no. 3 (1960)). A new method was elaborated by the authors. They proceeded from the fact that at a higher temperature and a higher oxygen content in the solution, the formation of corrosion cracks proceeds more quickly. In addition, the rate of formation also depends on the chlorine-ion concentration. Stand ВТИ-1 (VTI-1) (Ref. 3: P. A. Akol'zin, V. N. Gulyayev. Stend VTI-1 dlya ispytaniya metallov na dlitel'nuyu korrozionnuyu prochnost' pri vysokikh davleniyakh i temperaturakh rabochey sredy, tema 20 NM-59-475/17 (1959)) is used for testing tubular specimens in a solution which is continuously saturated with oxygen. In order to accelerate the formation of corrosion cracks, the following test conditions were chosen: constant load on the specimen, temperature 310°C, pressure of the medium 120 kg/cm^2, concentration of chloring ions 100,000, of oxygen 450, nitrogen 1050 mg per liter of solution. Specimens of 1Х18Н9Т (1Kh18N9T) steel were tested. At a load of 35 kg/mm^2, the specimen was destroyed in 24 hr 35 min, and at a load of 40 kg/mm^2 in 16 hr. When the load was reduced the time up to destruction increased accordingly (Fig. 1). The elaborated method permits a comparatively rapid estimate of the cracking tendency of various types

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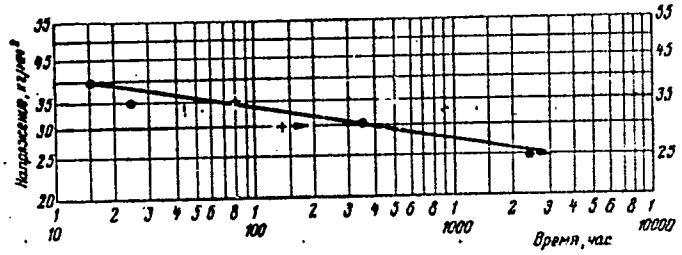
S/032/61/027/008/007/020
B107/B206

Rapid method for...

of steel in sodium-chloride solutions. There are 2 figures and 3 Soviet references. [Abstracter's note: Essentially complete translation.]

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy nauchno-issledovatel'skiy (All-Union Scientific Research Institute of Heat Engineering)



Legend to Fig. 1: (x) Time in hr; (y) load in kg/mm^2; (e) divided specimens (12 by 2.0 mm); (+) undivided specimens (13 by 1.5 mm).

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GULYAYEV, V. N. (Chelyabinsk)

Annihilation of vacancies in the process of creep as a factor of increased heat resistance. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.6:103-106 N-D '62. (MIRA 16:1)

(Crystal lattices) (Creep of metals)

GULYAYEV, Valentin Nikolayevich; FOMICHINA, G.S., kand. tekhn. nauk, retsenzent; BACHURSKAYA, L.D., inzh., retsenzent; TIKHONOVA, T.V., red.

[Food concentrates and their use under home conditions] Pishchevye kontsentraty i ikh ispol'zovanie v domashnikh usloviiakh. Moskva, Pishchevaia promyshlennost', 1965. 109 p. (MIRA 18:8)

T 23561-65 EWT(m)/EWA(d)/EWP(t)/EWP(b) JD/HW/WB

AM4040731 BOOK EXPLOITATION S/

Akol'zin, Pavel Alekseyevich; Gulyayev, Viktor Nikolayevich 13+1

Corrosion cracking of austenitic steels in heat-power plant equipment (Korrozionnoye rastreskivaniye austenitnykh staley v teploenergeticheskom oborudovanii) Moscow, Gosenergoizdat, 1963. 270 p. illus., biblio. 3000 copies printed

TOPIC TAGS: austenitic steel, stainless steel, steel corrosion, stress corrosion, corrosion cracking, steel corrosion cracking, stress corrosion prevention, corrosion cracking prevention, austenitic steel stress corrosion, steel stress corrosion

PURPOSE AND COVERAGE: This book is intended for engineering personnel of electric power stations, research, planning and coordinating organizations. The book presents the newest data on corrosion cracking of austenitic stainless steels in power plants operating under conditions of super-high and super-critical vapor parameters and in atomic power stations. The book summarizes materials based on investigations and operational data accumulated by the All-Union Scientific Research Institute of Heat Engineering im. F. E. Dzerzhinskiy. On the basis of summarized Soviet and non-Soviet materials, useful recommendations are made for the prevention of corrosion cracking. No personalities are mentioned. There are 182 references, both Soviet and non-Soviet.

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AM4040731

SUB CODE: ML, MA SUBMITTED: 19Sep63 NO REF SOV: 113

OTHER: 069

Card 7/7

S/096/63/000/005/008/011
E194/E455

AUTHORS: Gulyayev, V.N., Candidate of Technical Sciences,
Gromova, Ye.S., Engineer

TITLE: An investigation of the influence of the analysis of austenitic steel and of the influence of inhibiting additives to solutions on corrosive cracking

PERIODICAL: Teploenergetika, no.5, 1963, 75-79

TEXT: Hitherto the principal method of avoiding the corrosive cracking of austenitic steels has been to keep the stresses low. Improved alloying has been little used because little information is available about the subject. It is a difficult and expensive matter to maintain the water conditions required to avoid corrosive cracking and it would be very attractive to use additives which inhibit corrosive cracking. The tendency of various grades of austenitic steel to corrosive cracking in solutions of sodium hydroxide and sodium chloride with various additives was studied. The behavior of the steels was assessed by determining the time to failure, in hours, at various stresses in the range 30 to 40 kg/mm^2. Although the presence of nitrogen in austenitic chrome nickel steel has sometimes been known to increase

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its resistance to corrosive cracking in sodium hydroxide solution it does not always have this effect; the influence of nitrogen seems to depend both on the amount present and on the analysis of the steel. In the case of steel grade 18-8, the introduction of 0.15% N and 2.7% W, or about 0.1% N and 1 to 2% Nb, has no appreciable influence on the tendency to corrosive cracking in a 4% solution of sodium hydroxide as compared with steel 1Х18Н9Т (1Kh18N9T). However, alloying of steel type 18-8 with about 3% W, after austenization, increases the time to failure in corrosive solutions by a factor of at least 5 as compared with steel 1Kh18N9T. When steel reaches a condition in which it is subject to intercrystallite corrosion as determined in the usual way, its resistance to corrosive cracking in solution containing ions of chlorine or oxygen is reduced. Steels grades ЭП184 (EP-184), ЭИ695Р (EI-695R), ЭП17 (EP17), which are new grades for power station equipment, were subject to corrosion cracking in solutions of NaCl and NaOH. In view of this tendency, when they are used in power plants particular care must be directed towards maintaining the necessary water conditions to avoid this kind of

damage. At temperatures up to 310°C various inhibitors improve performance in aqueous solutions of NaOH and solutions containing chlorine ions and oxygen. In 4% NaOH at 310°C the best inhibiting effect (greater than 14) was given by the addition of sodium nitrite (10 g/litre NO_3^-). For solutions containing 10^5 mg/litre Cl^-, 450 mg/litre O_2 and 1050 mg/litre N_2, at 310°C additions of about 2 g/litre octadecylamine and 100 g/litre PO_4^{3-} as trisodium phosphate retarded corrosion cracking of steel 1Kh18N9T after austenization. The inhibiting effects were respectively more than 25 and more than 40. As the possibility of inhibiting cracking in solutions of NaOH and NaCl has been demonstrated up to a temperature of 310°C, further investigations should be made to establish the optimum amount of inhibitor and to determine their effectiveness when the surfaces are alternately wet and dry. There are 5 figures and 3 tables.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy institut
(All-Union Heat Engineering Institute)

GULYAYEV, V.N.

Stress-rupture strength tests of specimens of 3 mm. diam. Zav.lab. 29 no.12:1490-1491 '63. (MIRA 17:1)

1. Vostochnyy filial Vsesoyuznogo teplotekhnicheskogo nauchno-issledovatel'skogo instituta.

GULYAYEV, V.N.; KOLESNICHENKO, M.G.

Durability test in the process of creep of material subjected to stepped load variations. Zav. lab. 29 no.6:748-752 '63. (MIRA 16:6)

1. Vsesoyuznyy teplotekhnicheskiy nauchno-issledovatel'skiy institut imeni F.E. Dzerzhinskogo.
(Strength of materials)
(Creep of materials)

AKOL'ZIN, P.A., doktor tekhn.nauk; GULYAYEV, V.N., kand.tekhn.nauk

Testing of a pipeline with protective sheathing. Teploenergetika 11 no. 1:32-36 Ja '64. (MIRA 17:5)

1. Vsesoyuznyy teplotekhnicheskiy institut.

ACCESSION NR: AP4019087 S/0096/64/000/003/0066/0070

AUTHORS: Gulyayev, V. N. (Candidate of technical sciences); Luzhnov, M. I. (Engineer)

TITLE: Choice of material for condenser tubes

SOURCE: Teploenergetika, no. 3, 1964, 66-70

TOPIC TAGS: condenser tube, brass tube, stainless steel tube, steel 304, copper alloy 88 10 2, steel OKh13, steel Kh17, steel Kh17N4AG9, steel Kh22N54G9, steel OKh20N4AG10, steel Kh14G14N, copper zinc, tin, chromium, manganese, nickel, trace element

ABSTRACT: A comparison is made between the use of copper alloy (88-10-2) tubes and of steel tubes for condenser application in turbine installations. The composition of copper alloy was: 88% Cu, 10% Zn, 2% Sn. It was found that the Cu_2O and CuO formed in copper tubes was deposited on the turbine blades and lowered the efficiency. After mentioning the success achieved with stainless steel 304 tubes at the Rivesville plant (R. Long. Electric Light and Power, Vol. 39, No. 2, 1961), the authors discuss the use of Cr and Cr-Mn-Ni steels as a more economical

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ACCESSION NR: AP4019087

expedient. Primary emphasis is placed on the cost of the required alloying elements for different types of steel. This type of comparison results in the following cost ostimates por ton of 20 x 0.5 mm tubes made from the different steels: OKh13 (12% Cr) - 1615 rubles, Kh17 (17% Cr) - 1634 rubles; Kh17N4AG9 (17% Cr, 4% Ni, 9% Mn) - 1806 rubles; Kh22N5AG9 (22% Cr, 5% Ni, 9% Mn) - 1852 rubles; OKh20N4AG10 - 1824 rubles; Kh14G14N (14% Cr, 1% Ni, 14% Mn) - 1751 rubles. Although application of one particular typo of steel depends on prior field testing, it is suggested that the application of these steels rather than the Cr-Ni steels is justified both on economic and technical grounds. Orig. art. has: 8 tables.

ASSOCIATION: VoFVTI

SUBMITTED: 00 DATE ACQ: 26Mar64 ENCL: 00

SUB CODE: IE, MM NO REF SOV: 010 OTHER: 004

Card 2/2

ACCESSION NR: AP4040987 S/0279/64/000/003/0145/0147

AUTHORS: Gulyayev, V. N. (Chelyabinsk); Bulanov, Yu. P. (Chelyabinsk)

TITLE: Phases of Ti_nNi_mC in steels 1Kh18N12T and 1Kh18N9T

SOURCE: AN SSSR. Izvestiya. Metallurgiya i gornoye delo, no. 3, 1964, 145-147

TOPIC TAGS: steel, titanium, nickel, carbon, grain structure, phase property, sigma phase/ RKD x ray camera, 1Kh18N12T steel, 1Kh18N9T steel

ABSTRACT: With the aim of determining the causes of damage of straight tubes made of steels 1Kh18N12T and 1Kh18N9T and of overcoming the discrepancies encountered in the behavior of tubes with fine grain structure, the authors conducted a study of the phase properties of the tube metals after keeping them for 10 000 to 15 000 hours at a temperature between 600 and 615C. The phase properties were studied by means of electrochemical separation of the phases and subsequent chemical and radiographic analyses. For the differentiation of the phase components, anode dissolution was used in two component electrolytes. For strong acids 250 ml HCl + 150 ml H_2O + 5 g oxalic acid was used at a surface current of 0.03-0.05 amp/cm^2. For weak acids, 200 ml HCl + 1000 ml H_2O + 5 g oxalic acid or 350 g KCl + 950 ml

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ACCESSION NR: AP4040987

H_2O + 50 ml HCl was used at 1 amp/cm^2. The radiographic analysis was performed by the x-ray method using an RKD camera. The results of the dependence of the residual deformation due to creep on the appearing phases showed the role of Ti_nNi_mC. For a residual deformation of 0.1-1.56%, the phases observed were TiC, $Me_{23}C_6$ and the sigma phase. For a residual deformation of 2.5-3.13%, Ti_nNi_mC was also observed. For 2.5-12.56%, only TiC, sigma, and Ti_nNi_mC phases were present.

The authors thank the scientific collaborator comrade L. N. Rastorguyev of Moskovskiy institut stali i splavov (Moscow Institute of Steel and Alloys) for his help in carrying out this work. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: none

SUBMITTED: 20May63 ENCL: 00

SUB CODE: MM NO REF SOV: 007 OTHER: 001

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GULYAYEV, V.N., inzh.

Evaluation of shock resilience of steampipes. Elek. sta. 35 no.6: 33-36 Je '64. (MIRA 18:1)

ACCESSION NR: AP4042620 S/0096/64/000/008/0054/0057

AUTHOR: Gulyayev, V. N. (Candidate of technical sciences); Tseytlin, V. Z. (Candidate of technical sciences); Ryabova, L. I. (Engineer); Talov, N. P. (Engineer); Bulanov, Yu. P. (Engineer)

TITLE: Effect of the duration of heating on the structure and properties of chromium-manganese-nickel steels

SOURCE: Teploenergetika, no. 8, 1964, 54-57

TOPIC TAGS: chromium manganese nickel steel, austenitic heat resistant steel, low nickel steel, austenitic steel, steel aging, steel corrosion, austenitic steel steam pipeline, OKh14N3G11AB steel, OKh18N5G12AB steel, 1Kh14N3G14T steel, 1Kh18N9T steel

ABSTRACT: In a search for substitutes for 1Kh18N9T (AISI321) steel in high-temperature steam service, the structure, phase composition, mechanical properties, and susceptibility to intergranular corrosion of three heat-resistant, stainless, low-nickel steels have been investigated after aging at 500, 550, and 650C for up to 2000 hr. Induction-melted ingots of the OKh14N3G11AB steel, OKh18N5G12AB steel,

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ACCESSION NR: AP4042620

and 1Kh14N3G14T steel were forged and air cooled from 1050C. In the 20—650C temperature range, the strength of the new steels in the initial state was equal to or higher than that of 1Kh18N9T steel. The room-temperature ductility of all the steels except OKh18N5G12AB was higher than that of 1Kh18N9T steel. At room temperature, OKh14N3G11AB steel had a notch toughness of 14—19 kgm/cm^2, OKh18N5G12AB steel, of 7—13 kgm/cm^2, and 1Kh14N3G14T steel, of 26—32 kgm/cm^2. Aging of Cr-Mn-Ni steels at 500C or higher produced diffusional decomposition of the supersaturated solid-solution austenite with the precipitation of chromium and manganese carbides and nitrides, predominantly along the grain boundaries. The diffusional decomposition of austenite of nitrogen-containing Cr-Mn-Ni steels induces hot brittleness in them, particularly in OKh18N5G12AB steel, whose notch toughness dropped to 2—4 kgm/cm^2 after 2000-hr aging at 650C. The steels became susceptible to intergranular corrosion after about 100-hr aging at 500C; however, the corrosion resistance gradually increased after about 1000-hr aging. In general, the investigated steels should not be used at temperatures higher than 460—470C when the operating conditions might promote intergranular corrosion by water and/or steam. In the absence of such a medium, an operating

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temperature as high as 500C can be permitted, with no changes occurring in the structure or mechanical properties. Orig. art. has: 6 figures and 2 tables.

ASSOCIATION: VTI; TsNIIChM

SUBMITTED: 00	ATD PRESS: 3083	ENCL: 00
SUB CODE: MM	NO REF SOV: 004	OTHER: 000

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L 15735-65 EWT(m)/EWP(w)/EWA(d)/EWP(t)/EWP(k)/EWP(b) PF-4 AGD(m)-3
MJW/JD/HW

ACCESSION NR: AP4047992 S/0096/64/000/011/0060/0071

AUTHORS: Gulyayev, V. N. (Candidate of technical sciences); Bulanov, Yu. P. (Engineer)

TITLE: Failure of steam superheat pipes made from steels 1Kh18N12T and 1Kh18N9T

SOURCE: Teploenergetika, no. 11, 1964, 68-71

TOPIC TAGS: steel pipe failure, nickel steel, titanium steel, steam pipe/1Kh18N12T steel, 1Kh18N9T steel, EI 257 steel

ABSTRACT: In order to determine the cause (or causes) of a number of failures in steam superheat pipes and elbows (made of Kh18N12T and 1Kh18N9T steels) at an operating temperature of 610C, 23 damaged and undamaged pipes (32 mm diameter, 5.5 mm wall) were investigated after 11 126-15 505 hours of operation. The physical properties (impact strength, elongation, tensile strength) as well as grain size and contents of different phases were investigated with the following conclusions: 1) the properties of the pipe materials used satisfy the requirements of technical specifications ChMTU 2884-51, sometimes do not correspond to the properties of the material which was used in the experiments on which the original recommendation of steel 1Kh18N12T (1Kh18N9T) for this application was based; 2) failure can occur

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even though the requirements of technical specifications ChMTU-2884-51 are satisfied and even though the operating pressures and temperatures do not exceed the design values. A major reason for those failures is the separation of the Ti_nNi_mC phase; 3) structural instability in pipes made from the above steels is caused by small grain size (7, 8 units and smaller on the grain size scale); 4) pipes made of 1Kh18N12T steel offer no advantages over pipes made of 1Kh18N9T and thus represent a useless waste of valuable Ni; 5) during repairs, pipes made of 1Kh18N9T should be used after inspection of grain size (...6 units), and should have carbon and titanium content just sufficient to produce TiC; 6) in view of the detrimental effect of Ti_nNi_mC, the necessity of alloying with titanium should be reviewed. Orig. art. has: 3 figures.

ASSOCIATION: VoF VTI

SUBMITTED: 00 ENCL: 00

SUB CODE: MM, IE NO REF SOV: 007 OTHER: 001

Card 2/2

L 20253-65 EWT(m)/EWA(d)/EWP(t)/EWP(b) SSD/ASD(f)-3/ASD(a)-3/AFTC(p) Pa-4/
ACCESSION NR: AP4049889 Pb-4 JD/WB/MJW S/0096/64/000/012/0021/0024

AUTHOR: Gulyayev, V. N. (Candidate of technical sciences)

TITLE: Concerning a requirement for austenitic heat-resistant steels in power engineering

SOURCE: Teploenergetika, no. 12, 1964, 21-24

TOPIC TAGS: austenitic steel, heat resistance, corrosion, titanium, niobium, oxygen, chlorine/ 1Kh18N9T steel, 1Kh18N127* steel

ABSTRACT: The requirement of resistance to intercrystalline corrosion in austenitic steels subjected to metal working was investigated. Experiments on the tendency for intercrystalline corrosion in an atmosphere of oxygen were performed in accordance with the GOST standards 6032-58. The steels tested included 1Kh18N9T, 1Kh18N127*, EP-17, EI-695R, EI-184, EI-694 and EI-695. Tests on the stress-rupture strength of 18-8 type steels were also performed. The results are shown in Fig. 1 on the Enclosure. It is concluded that, for operation in an atmosphere of steam, austenitic steel without the stabilizing addition of titanium and niobium should be used. Steels with these elements would be necessary only where the working atmosphere undergoes condensation. Steels having a tendency for intercrystalline corrosion were found to be especially susceptible to the presence of oxygen and

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*[1Kh18N127 designation should be 1Kh15N12T]

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ACCESSION NR: AP4049889

chlorine ions in water. Changing over to steels without niobium or titanium was found to have a number of advantages, including a reduction in the capital costs. Orig. art. has: 3 tables and 1 figure.

ASSOCIATION: VoF VTI (All-Union Heat Engineering Institute)

SUBMITTED: 00 ENCL: 01

SUB CODE: MM NR REF SOV: 017 OTHER: 005

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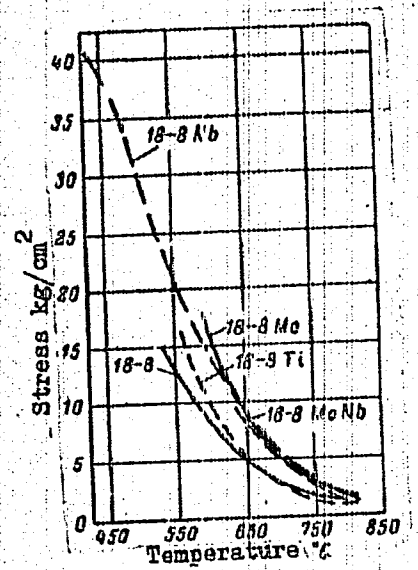
L 20253-65
ACCESSION NR: AP4049889

ENCLOSURE: 01

Fig. 1. Temperature dependence of the stress-rupture strength of austenitic steels 18-8 after 100 000 hours.



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L 24152-65 EWT(m)/EWP(b)/T/EWA(d)/EWP(w)/EWP(t) JD/WB

ACCESSION NR: AP5002174 S/0032/65/031/001/0077/0078

AUTHORS: Gulyayev, V. N.; Venkova, L. V.

TITLE: Method for investigating corrosion cracking with a changing load

SOURCE: Zavodskaya laboratoriya, v. 31, no. 1, 1965, 77-78

TOPIC TAGS: corrosion resistance, corrosive cracking, corrosive medium, fatigue / 1Kh18N9T steel, MP-4G testing machine, VTI-1 fatigue tester, VTI-2 fatigue tester

ABSTRACT: A method and apparatus for investigating corrosion cracking with linear changes of stress from σ_{max} to σ_{min} was developed. The device VTI-2 (or stand VTI-1), built into the creep and fatigue testing apparatus MP-4G, was set up as for fatigue testing in torsion, previously reported by V. N. Gulyayev, M. G. Kolesnichenko, S. S. Khamykovtsev (Ustanovka dlya ispytaniya metallov na dlitel'nuyu prochnost' pri tsiklicheski izmenyayushcheyasya nagruzke, GOSINTI, 1963). A specimen, held as shown in Fig. 1 on the Enclosure, was tested with a 4% NaOH solution at 120 atm and 310C. Samples of austenitic steel 1Kh18N9T (1050-1100C, air cooled) were compared for corrosion cracking under constant loading, periodic step loading, and periodic linear loading and unloading. The

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results are shown in Fig. 2 on the Enclosures, with the time to failure referred to a constant stress of 25 kg/mm^2 for the step loading, and to an average stress of 27.5 kg/mm^2 for the linear loading. The longer times to failure used with linear periodic loading were necessitated by the appearance of additional cracks which formed under stresses lower than the maximum, and relieved the principal crack-producing stress. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Vostochnyy filial Vsesoyuznogo teplotekhnicheskogo nauchno-issledovatel'skogo instituta im. F. E. Dzerzhinskogo (Eastern Branch of the All-Union Heat Technology Scientific Research Institute)

SUBMITTED: 00 ENCL: 02 SUB CODE: MM

NO REF SOV: 005 OTHER: 000

Card 2/4

USSR / Cultivated Plants. General Problems. M-1

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 58488

Author : Gulyayev, V. R.
Inst : Not given
Title : Flexible Utilization of Crop Rotations and the Inadmissibility of Upsetting Them Too Much

Orig Pub : S.-kh. Povolzh'ya, 1957, No 13, 7-12

Abstract : No abstract given

Card 1/1

ACCESSION NR: AP4000984 S/0182/63/000/011/0007/0010

AUTHOR: Golovanenko, S. A.; Chernov, A.N.; Gulyayev, V. V.

TITLE: Hot extrusion of shapes from steels and alloys

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 11, 1963, 7-10

TOPIC TAGS: hot extrusion, shape extrusion, steel shape extrusion, alloy shape extrusion, steel extrusion, alloy extrusion, extrusion pressure, extrusion temperature, extrusion constant, flow stress, extrusion speed, extrusion rate, stainless steel extrusion, heat resistant alloy extrusion, extrusion lubricant, glass lubricant

ABSTRACT: A series of shapes (see Fig. 1 in the Enclosure) of the difficultly workable steels (cross-sections of 2.0-11.9 cm^2) St. 3, Kh18N9T, 1Kh15N24V4T, and the alloy EI437B were obtained under semi-technical conditions by hot extrusion at 800 and 1500 metric tons. The extruded profiles were characterized by purity. equal to that of hot-rolled shapes and high mechanical properties. While studying the effect of the extrusion rate, it was proven that extrusion rates above 100 mm/second markedly decrease the cooling of the billet and improve the working conditions of the glass lubricant. In this way, the strain of extrusion was reduced and, to some extent, the corrosion resistance of the die was increased. A special heat resistant alloy is recommended for extrusion of

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ACCESSION NR: AP4000984

complicated profiles. For extrusion of simple profiles, the steel R18 is recommended as satisfactory for the production of dies. The resistance properties of materials used for the production of matrices have been evaluated. Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: TsNIIChM

SUBMITTED: 00 DATE ACQ: 30Dec63 ENCL: 01

SUB CODE: ML NO REF SOV: 001 OTHER: 000

Card 2/3 Z

GULYAYEV, V. V.

Gulyayev, V. V. "Sprouting of pine seedlings in forest nurseries", Trudy po les. khoz-vu (Kazan'), Issue 9, 1948, p. 36-50, -Bibliog: 14 items.

SO: U-2888, 12 Feb. 53, (Letopis' Zhurnal 'nykh Statey, NO. 2, 1949).

GULYAYEV, V. V.

Gulyayev, V. V. "Conditions favorable for the appearance of fungus diseases in pine nurseries", Trudy Pochv. in-ta im. Dokuchayeva, Vol. XXIX, 1948, p. 3-10, -Bibliog: 8 items.

SO: U-2088, 12 Feb. 53, (Letopis' Zhurnal 'nykh Statey, NO. 2, 1949).

GULYAYEV, V. V.

Gulyayev, V. V. "How to protect pine nurseries from 'shyutte'", Trudy Pochv. in-ta im. Dokuchayeva, Vol. XXIX, 1948, p. 11-35, -Bibliog: 7 items.

SO: U-2888, 12 Feb. 53, (Letopis' Zhurnal 'nykh Statey, NO. 2, 1949).

JULYAYEV, V. V.

35374. Mery Bor'by S [illegible]eznyami [illegible]eyantsev Sosny. Les i Step', [illegible]49, No. 5, S. [illegible]

SO: Letopis' Zhurnal'nykh Statey Vol. 34, Moskva, 1949

GULYAYEV, V. V. and BOBYNSKIY, A. A.

"Injurious Insects and Fungus Diseases in Field-Protective Forest Cultivation in Tatary [Tatar ASSR], Kazan', 1950, 80 pp.

GULYAYEV, V.V.

Cytospora canker of oak and Nectria canker of maple in the middle Volga Valley. Uch.zap.Kaz.un.115 no.8:159-166 '55. (MLRA 10:3)

1. Deystvitel'nyy chlen Obshchestva yestestvoispytateley.
(Volga Valley--Fungi, Phytopathogenic)
(Oak--Diseases and pests) (Maple--Diseases and pests)